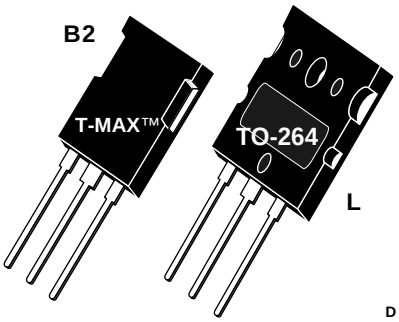
APL602B2(G)
APL602L(G)

*G Denotes RoHS Compliant, Pb Free Terminal Finish.

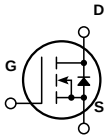
600V 49A 0.125Ω

LINEAR MOSFET



Linear Mosfets are optimized for applications operating in the Linear region where concurrent high voltage and high current can occur at near DC conditions (>100 msec).

- **Higher FBSOA**
- **Popular T-MAX™ or TO-264 Package**
- **Higher Power Dissipation**



MAXIMUM RATINGS All Ratings: T_C = 25°C unless otherwise specified.

Symbol	Parameter	APL602B2-L(G)	UNIT
V_{DSS}	Drain-Source Voltage	600	Volts
I_D	Continuous Drain Current @ T_C = 25°C	49	Amps
I_{DM}	Pulsed Drain Current ①	196	
V_{GS}	Gate-Source Voltage Continuous	±30	Volts
V_{GSM}	Gate-Source Voltage Transient	±40	
P_D	Total Power Dissipation @ T_C = 25°C	730	Watts
	Linear Derating Factor	5.84	W/°C
T_J,T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	°C
T_L	Lead Temperature: 0.063" from Case for 10 Sec.	300	
I_{AR}	Avalanche Current ① (Repetitive and Non-Repetitive)	49	Amps
E_{AR}	Repetitive Avalanche Energy ①	50	mJ
E_{AS}	Single Pulse Avalanche Energy ④	3000	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions / Part Number	MIN	TYP	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage (V_{GS} = 0V, I_D = 250 µA)	600			Volts
I_D(ON)	On State Drain Current ②(V_{DS} > I_D(ON) x R_{DS}(ON) Max, V_{GS} = 12V)	49			Amps
R_{DS}(ON)	Drain-Source On-State Resistance ②(V_{GS} = 12V, 24.5A)			0.125	Ohms
I_{DSS}	Zero Gate Voltage Drain Current (V_{DS} = 600v, V_{GS} = 0V)			25	µA
	Zero Gate Voltage Drain Current (V_{DS} = 480V, V_{GS} = 0V, T_C = 125°C)			250	
I_{GSS}	Gate-Source Leakage Current (V_{GS} = ±30V, V_{DS} = 0V)			±100	nA
V_{GS}(TH)	Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 2.5mA)	2		4	Volts

CAUTION: These Devices are Sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

DYNAMIC CHARACTERISTICS

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1 MHz		7485	9000	pF
C_{oss}	Output Capacitance			1290	1810	
C_{rss}	Reverse Transfer Capacitance			617	930	
t_d(on)	Turn-on Delay Time	V_{GS} = 15V V_{DD} = 300V I_D = 49A @ 25°C R_G = 0.6Ω		13	26	ns
t_r	Rise Time			27	54	
t_d(off)	Turn-off Delay Time			56	84	
t_f	Fall Time			16	20	

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			.17	°C/W
$R_{\theta JA}$	Junction to Ambient			40	

① Repetitive Rating: Pulse width limited by maximum junction temperature.
② Pulse Test: Pulse width < 380 µS, Duty Cycle < 2%
③ See MIL-STD-750 Method 3471
④ Starting T_j = +25°C, L = 2.50mH, R_G = 25Ω, Peak I_L = 49A

APT Reserves the right to change, without notice, the specifications and information contained herein.

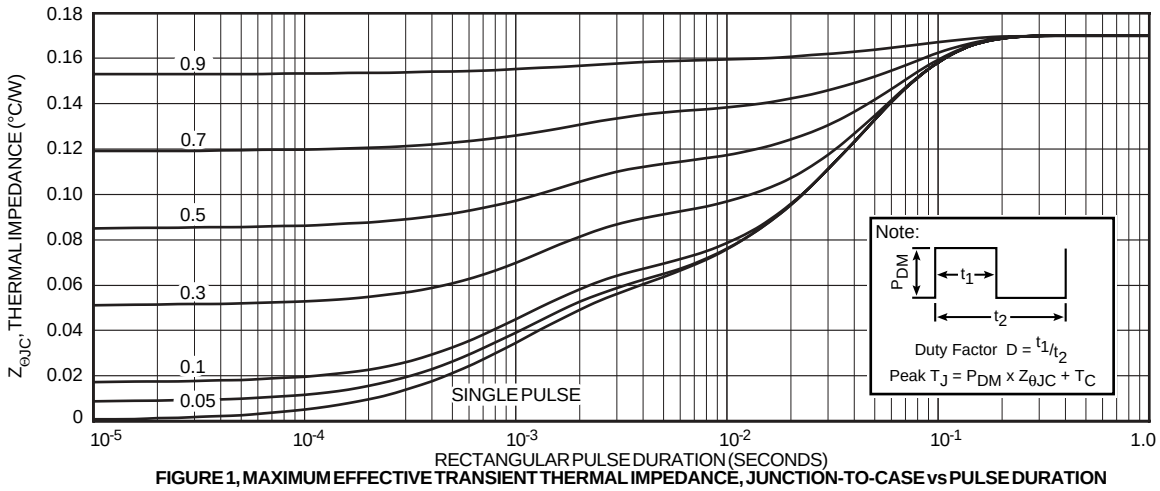


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

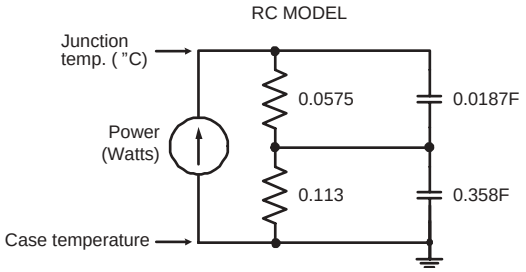


FIGURE 1a, TRANSIENT THERMAL IMPEDANCE MODEL

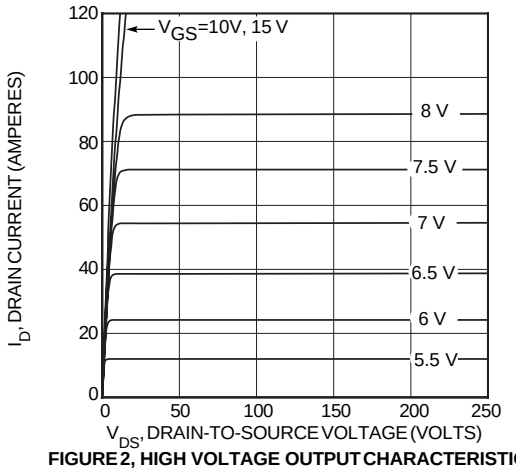


FIGURE 2, HIGH VOLTAGE OUTPUT CHARACTERISTICS

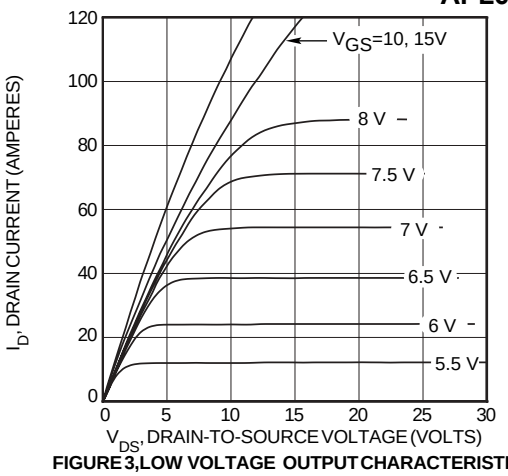


FIGURE 3,LOW VOLTAGE OUTPUT CHARACTERISTICS

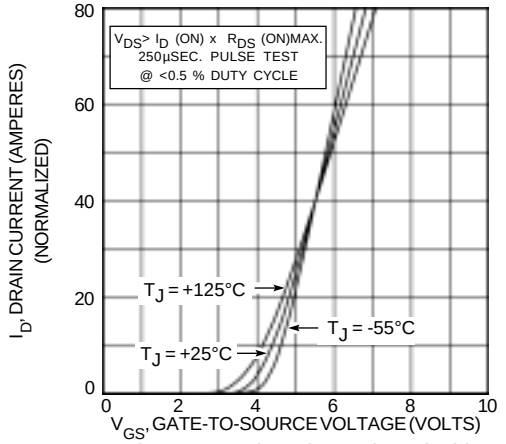


FIGURE 4, TRANSFER CHARACTERISTICS

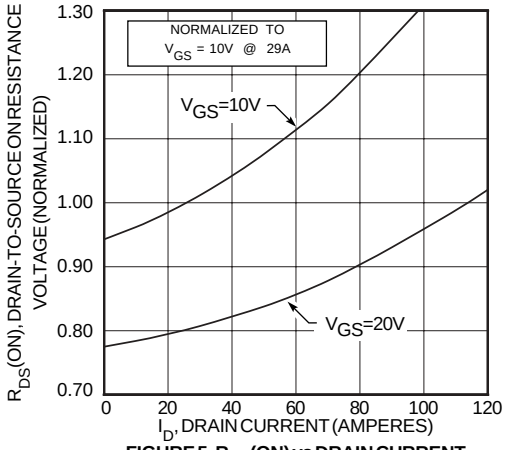


FIGURE 5, R_{DS}(ON) vs DRAIN CURRENT

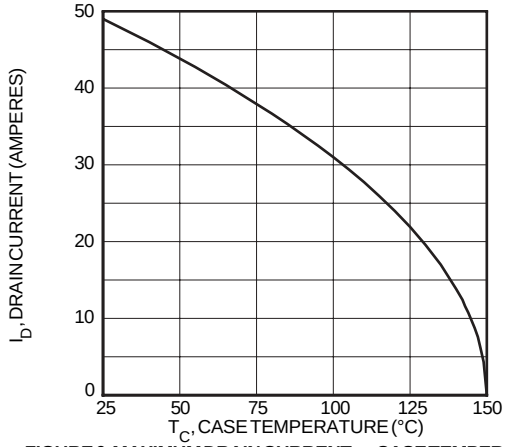


FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE

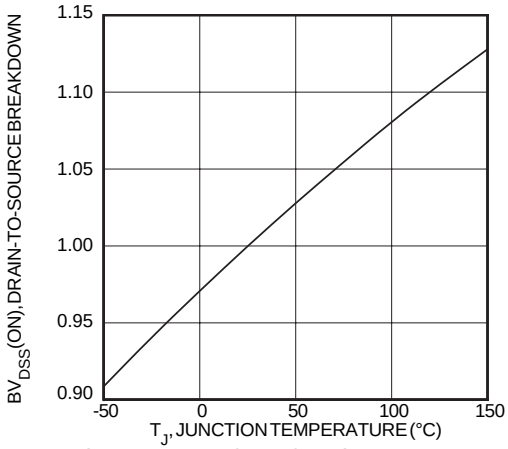


FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE

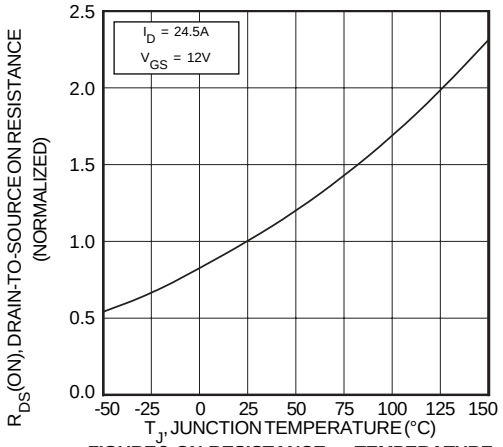


FIGURE 8, ON-RESISTANCE vs. TEMPERATURE

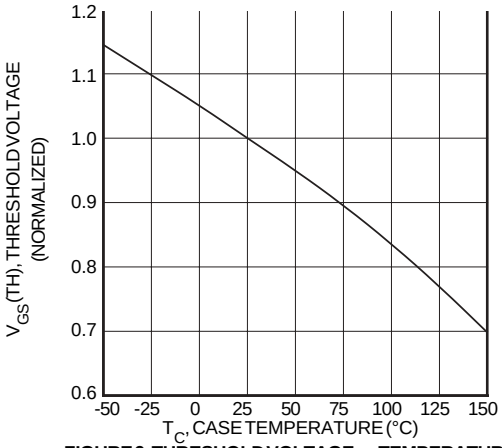


FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE

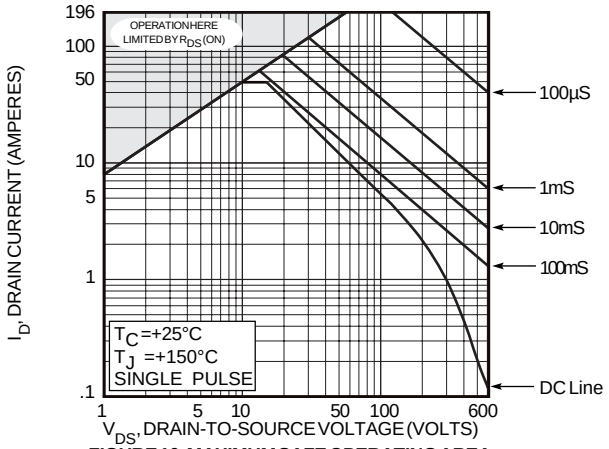


FIGURE 10, MAXIMUM SAFE OPERATING AREA

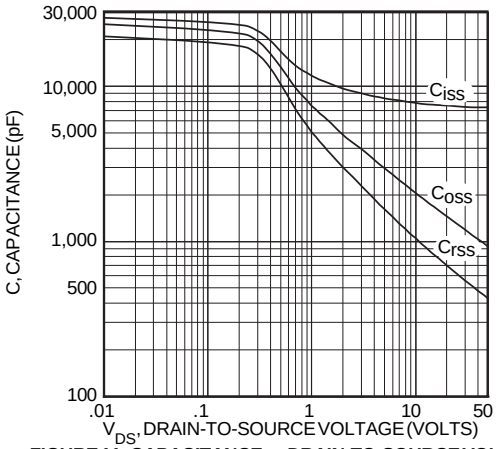
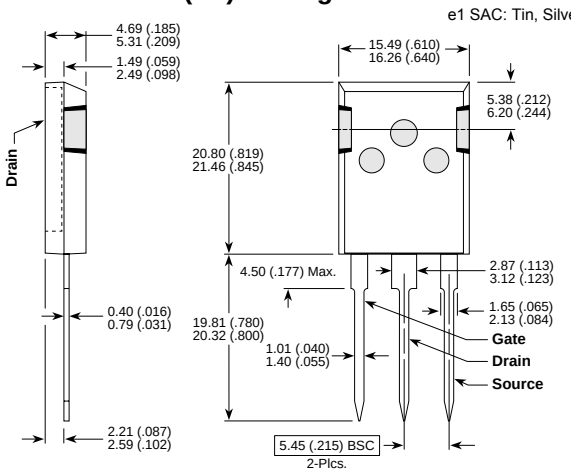


FIGURE 11, CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

T-MAX™ (B2) Package Outline

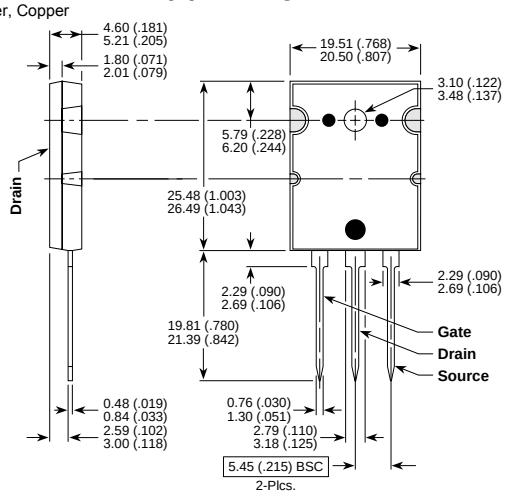
e1 SAC: Tin, Silver, Copper



These dimensions are equal to the TO-247 without the mounting hole.

Dimensions in Millimeters and (Inches)

TO-264 (L) Package Outline



Dimensions in Millimeters and (Inches)